

REMARKS

Claims 1, 3–10, and 12–16 are pending. Claims 2 and 11 are currently canceled. Reconsideration of the application in light of the following remarks is respectfully requested.

§ 103 Rejections

Claims 1, 3–10, and 12–16 stand rejected under 35 USC § 103(a) as being unpatentable over Dillon et al. (US 6,277,919). The Patent Office asserts “each of the claimed ingredients is discussed and suggested to be used in combination with one another” in Dillon.

Applicants respectfully disagree with the Patent Office rejection. In order to establish a *prima facie* case of obviousness, three criteria must be met: (i) there must be a suggestion or motivation in the cited art or shown in the ordinary skill of the art to combine the references, (ii) there must be a reasonable expectation of success, and (iii) all elements of the claim limitations must be taught or suggested. MPEP §2142. The Patent Office has failed to establish a *prima facie* case of obviousness. Thus, the rejection should be withdrawn.

Claim 1

Dillon does not teach, suggest or describe all of the elements in pending claim 1.

Claim 1 recites a melt processable composition comprising, *inter alia*, a fluoropolymer processing aid having a poly(oxyalkylene) polymer and a fluoropolymer having vinylidene fluoride (VDF) and at least one other monomer, wherein the VDF content in the fluoropolymer is greater than 75% by weight.

Dillon discloses, at the passage cited by the Patent Office, a fluorothermoplastic processing aid that is either a VDF homopolymer or is derived solely from VDF and hexafluoropropylene (HFP), which has a range of VDF-derived monomer units of from 67 to 99 weight percent, more preferably from 67 to 90 weight percent (See Dillon, column 6, lines 5–7). Although Dillon makes this broad disclosure, Dillon does not particularly disclose a melt processable composition as claimed in claim 1. Particularly, Dillon does not disclose a fluoropolymer processing aid comprising a fluoropolymer having vinylidene fluoride (VDF) and at least one other monomer, wherein the VDF content in the fluoropolymer is greater than 75% by weight.

Further, while Dillon discloses a broad range of VDF content in the cited passage and elsewhere in the disclosure, the examples of Dillon use no more than 22 weight percent of VDF, which is far less than the greater than 75% by weight recited in pending claim 1. Thus, as the Patent Office admits, there is no anticipatory example in Dillon and thus Dillon fails to teach all elements of pending claim 1.

The Patent Office attempts to overcome the lack of disclosure in Dillon of the claimed VDF content by making the conclusory assertion that the claimed range would have been obvious from the disclosure cited in Dillon.

When a reference fails to provide a teaching that is sufficiently specific for anticipation of a claimed range, the Patent Office may establish a *prima facie* case of obviousness if it can provide evidence in the cited art that recognizes a particular parameter to be a result effective variable. See MPEP §2144.05(II)(B)

The Patent Office has not shown where Dillon teaches, suggests or describes that the level of VDF monomer in a fluoropolymer processing aid may affect the final properties of a melt-processable composition. Accordingly, neither the disclosure provided in Dillon nor the examples therein are adequate to enable one of ordinary skill in the art to arrive at Applicant's claimed invention. That is, the Patent Office has failed to show where Dillon teaches, suggests or describes a melt processable composition comprising one or more thermoplastic hydrocarbon polymers and a fluoropolymer processing aid having a poly(oxyalkylene) polymer and a fluoropolymer having interpolymerized units of VDF and at least one other monomer wherein the VDF content in the fluoropolymer is greater than 75% by weight (wherein the melt processable composition upon extrusion achieves an extrudate exhibiting no melt defects at a lower level of fluoropolymer processing aid when compared to a standard processing aid system).

Similarly, the Patent Office has failed to show a suggestion or motivation in Dillon to modify the disclosure therein to use the specific content range of VDF in the fluoropolymer of claim 1 to achieve the beneficial results described in pending claim 1.

Even if, *arguendo*, the Patent Office has established a *prima facie* case of obviousness with respect to claim 1, the Applicants submit that they have rebutted this rejection with a showing of surprising results. That is, the Applicants have shown that melt processable

compositions as claimed in claim 1 may contain lower levels of fluoropolymer processing aid to achieve a composition that exhibits no melt defects when compared to a standard processing aid system.

The Applicants demonstrate the surprising results of the claimed invention described in pending claim 1 at least in Table 2. A fluoropolymer processing aid containing 60 weight percent of VDF, 40 weight percent HFP, and 2/1 fluoropolymer to PEG ratio was used as a standard fluoropolymer processing additive in Comparative Example 6 (Table 2). This composition required 800 ppm of PPA in order to clear melt fracture. The Applicants further found that when the fluoropolymer processing additive contained 90 weight percent VDF, 10 weight percent HFP, and *no PEG* (Comparative Example 5), more than 1000 ppm of PPA was required to clear melt fracture, which was even more than the standard fluoropolymer processing additive. Surprisingly, when a melt processable composition such as those described in claim 1 was extruded (i.e., the fluoropolymer processing aid comprised 90% by weight VDF and 10% by weight HFP and PEG in a 2:1 ratio of fluoropolymer to PEG), the amount of processing aid required to clear melt fracture for the sampled host polymers was substantially reduced (700 ppm or less).

Accordingly, even if the Patent Office has established a *prima facie* case of obviousness (which, as explained above, Applicants believe they have not), the Applicants have rebutted such a showing by demonstrating surprising results. Accordingly, the Applicants respectfully request withdrawal of the rejection of claim 1 as obvious over Dillon.

Claim 7

Claim 7 recites a melt processable composition comprising one or more thermoplastic hydrocarbon polymers and a fluoropolymer processing aid having a poly(oxyalkylene) polymer and a thermoplastic copolymer having interpolymers of VDF and at least one other monomer. The vinylidene fluoride content of the thermoplastic fluoropolymer is greater than 85% by weight. Further, the melt processable composition upon extrusion, achieves an extrudate exhibiting no melt defects.

For at least the reasons cited above with regard to claim 1, the Patent Office has failed to establish a *prima facie* case of obviousness for pending claim 7. In particular, the Patent Office has not shown all of the elements of pending claim 7 in the cited art (in that they have at least

failed to show a fluoropolymer processing aid as claimed in claim 7). The Patent Office has not overcome the failure of the cited art to teach the claimed invention by establishing the claimed range as obvious because the Patent Office has failed to show that the cited art teaches that the fluoropolymer VDF content is a results effective variable. Furthermore, the Patent Office has not shown a motivation in the prior art to modify the teachings of the cited art to arrive at the subject matter of pending claim 7.

Even if the Patent Office has established a *prima facie* case of obviousness for rejecting claim 7 over Dillon, the Applicants have rebutted such a showing by demonstrating surprising results (as discussed above regarding claim 1, Comparative Examples 5 & 6, and Examples in Table 2).

Claim 10

Claim 10 recites a melt processable composition comprising one or more thermoplastic hydrocarbon polymers and a fluoropolymer processing aid having a poly(oxyalkylene) polymer and a fluoropolymer having interpolymers of VDF and at least one other monomer, wherein the VDF content of the fluoropolymer is greater than 75% by weight, wherein the amount of fluoropolymer in the melt processable composition is less than 200 ppm.

The Patent Office has failed make a *prima facie* showing of obviousness with regard to claim 10 over Dillon. First, the Patent Office has failed to show where Dillon teaches, suggests or describes the elements of pending claim 10. Further, the Patent Office has failed to show a motivation in the cited art to modify the teachings of Dillon. Finally, even if the Patent Office has made a *prima facie* showing of obviousness with regard to claim 10 over Dillon, the Applicants have rebutted such a showing by presenting surprising results with regards to the melt processable compositions of claim 10. On these points, the Remarks presented above with respect to claim 1 are incorporated herein by reference.

Accordingly, the Applicants respectfully submit that the rejection of claim 10 as obviousness over Dillon has been overcome and kindly ask that it be withdrawn.

Claim 15

Independent claim 15 recites a fluoropolymer processing aid comprising a poly(oxyalkylene) polymer and a fluoropolymer having interpolymerized units of VDF and at least one other monomer wherein the VDF content of the fluoropolymer is greater than 75% by weight. Further, the fluoropolymer processing aid, when added to a melt processable composition, achieves an extrudate exhibiting no melt defects at a lower level of fluoropolymer processing aid when compared to a standard processing aid system.

With regard to claim 15, the Patent Office has failed make a *prima facie* showing of obviousness over Dillon. First, the Patent Office has failed to show where Dillon teaches, suggests or describes the elements of pending claim 15. Further, the Patent Office has failed to show a motivation in the cited art to modify the teachings of Dillon to arrive at the fluoropolymer processing aid of independent claim 15. Finally, even if the Patent Office has made a *prima facie* showing of obviousness with regard to claim 15 over Dillon, the Applicants have rebutted such a showing by presenting surprising results with regards to the performance of the claimed fluoropolymer processing aids of claim 15 when added to a melt processable composition. On these points, the Remarks presented above with respect to claim 1 are incorporated herein by reference.

Accordingly, the Applicants respectfully submit that the rejection of claim 15 as obviousness over Dillon has been overcome and kindly ask that it be withdrawn.

The remaining claims 3-6, 8-9, 12-14, and 16 each depend from independent claims 1, 7, 10, or 15. Thus, each of these claims is patentable at least on the basis of their dependency from a patentable base claim.

The Applicants respectfully submit that the rejection of claims 1, 3-10, and 12-16 under 35 USC §103(a) over Dillon has been overcome and kindly request that it be withdrawn.

CONCLUSION


In view of the foregoing Remarks, favorable reconsideration of the present application and the passing of this case to issue with all pending claims allowed are courteously solicited. Should Examiner wish to discuss any aspect of this application, Applicants' attorney would welcome a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

Date

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